

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 20 DEC 2005

Applicant's or agent's file reference FR9020038/PCT	FOR FURTHER ACTION	See Form PCT/IPEA/416 <b>WIPO</b> <b>PCT</b>
International application No. PCT/EP2004/053185	International filing date (day/month/year) 30.11.2004	Priority date (day/month/year) 19.12.2003
International Patent Classification (IPC) or national classification and IPC H04L12/18, H04L12/42, H04L12/433		
Applicant INTERNATIONAL BUSINESS MACHINES CORPORATION et al.		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <ul style="list-style-type: none"> <li>a. <input type="checkbox"/> <i>(sent to the applicant and to the International Bureau)</i> a total of sheets, as follows: <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> </li> <li>b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ul>	
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>	

Date of submission of the demand 27.09.2005	Date of completion of this report 16.12.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Poppe, F Telephone No. +31 70 340-4378



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/EP2004/053185

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

### Description, Pages

1-26 as originally filed

### Claims, Numbers

1-22 as originally filed

### Drawings, Sheets

1/19-19/19 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

- The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
- This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/053185

---

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

---

1. Statement

Novelty (N)	Yes:	Claims	2-6,8-18,20
	No:	Claims	1,7,19,21,22
Inventive step (IS)	Yes:	Claims	12,14
	No:	Claims	1-11,13,15-22
Industrial applicability (IA)	Yes:	Claims	1-22
	No:	Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/EP2004/053185

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: EP 0 561 381 A

D2: US 5 802 056 A

D3: STROLE N C: "The IBM Token-Ring Network - a Functional Overview", IEEE Network, Vol. 1, No. 1, January 1987, pp. 23-30.

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 1, 21 and 22** is not new in the sense of **Article 33(2) PCT**.

1.1. The document D1 discloses (the references in parentheses applying to this document):

a method to use in a node within a network comprising a transport layer protocol providing end-to-end data transfer, for multicasting datagrams (col. 3, l. 53 - col. 4, l. 5) on a virtual ring (col. 24, l. 56 - col. 25, l. 12: "unidirectional logical loop"), each node on the virtual ring being logically connected according to the network transport layer protocol (col. 24, l. 36-45: "a reliable transport protocol (e.g. TCP/IP)") to two and only two neighbor nodes through virtual connections, an upstream node and a downstream node (col. 24, l. 56 - col. 25, l. 12: "pre-defined downstream node", "pre-defined upstream node"; the "predetermined connections" which form the "logical loop" are "reliable transport protocol connections"), said method comprising the steps of:

- a. sending a virtual ring datagram to the downstream neighbor node on the virtual ring (col. 28, l. 13-29; fig. 9a: "multicast message"; both an "INIT TOKEN message" and a "MULTICAST SINGLE packet" fall under this denomination); said virtual ring datagram comprising:
  - a virtual ring identifier (fig. 4b: "SOCKET ID", which according to col. 31, l. 45-54 corresponds to a "GROUP ID" of a multicast group);

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/EP2004/053185

- means for identifying the node originator of the virtual ring datagram (fig. 4b: "SOURCE LA", which according to col. 8, l. 5-21 identifies "the node from which the packet is sent");
- data (fig. 4b: "data word");

b. when a datagram is received (col. 26, l. 6-50: "INIT TOKEN message"; or col. 33, l. 2 - col. 34, l. 25: "MULTICAST SINGLE packet"):

- identifying the received datagram (implicit in col. 26, l. 6-50 and col. 33, l. 2 - col. 34, l. 25);
- if the received datagram is a token (col. 26, l. 6-50: "INIT TOKEN message"):
  - identifying the virtual ring (implicit in col. 26, l. 19-29: the token is forwarded only to the downstream node on the logical loop on which the token is circulating);
  - checking whether the token is valid or not (implicit in col. 26, l. 37-44: some tokens are ignored and deleted);
  - if the token is valid, forwarding the token to the downstream neighbor node on the identified virtual ring (col. 26, l. 19-29: "... transmit the message to the next predefined downstream node ...");
- if the received datagram is a virtual ring datagram (col. 33, l. 2 - col. 34, l. 25: "MULTICAST SINGLE packet"; fig. 9g-9h):
  - identifying the virtual ring (col. 33, l. 13-23: the node checks whether there is a "CAM HIT", which according to col. 31, l. 45-54 requires that the "SOCKET ID" has to be determined);
  - checking the node originator of the virtual ring datagram (col. 33, l. 2-12 and col. 34, l. 10-25: the node determines the "SOURCE LA" of the "MULTICAST SINGLE" packet);
  - if the received virtual ring datagram has not been locally originated (col. 34, l. 10-25: "SOURCE LA of the packet does not match MY LA"):
    - processing data comprised in said virtual ring datagram (implicit: the node "resets the round-trip bit (R)");
    - forwarding said virtual ring datagram to the downstream neighbor node on the identified virtual ring (the node "transmits the packet back onto the ring");
  - if the received virtual ring datagram has been locally originated (col. 33,

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/EP2004/053185

I. 2-12: "SOURCE LA of the packet matches MY LA"):

- removing the virtual ring datagram from the virtual ring ("handle removal of the packet").

The subject-matter of claim 1 is therefore not new.

1.2. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 21 and 22, which therefore are also considered not new.

1.3. For the sake of completeness it is noted that the subject-matter of claims 1, 21 and 22 also does not involve an inventive step over the disclosure of D2 (col. 4, I. 35 - col. 5, I. 17).

2. Dependent claims 2-11, 13 and 15-20 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D1, D2 and D3 and the corresponding passages cited in the search report.

3. The combination of the features of dependent claims 11 and 12, or 13 and 14, together with the features of independent claim 1 is neither known from, nor rendered obvious by, the available prior art. A backup virtual ring manager handling insertion and removal requests when the virtual ring manager is unable to handle these requests within a certain period of time is not known from any of the documents cited in the search report, nor hinted at in these documents.